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HEADLINE: N.C. State will lead research into tobacco genome

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BODY:
This year alone over 10 percent of smoking Americans will vow to quit or cut back their smoking habits as part of their New Year's resolutions. And now, Philip Morris USA, one of the leading tobacco product producers, has made a resolution of its own.

Recently announced, Philip Morris USA has agreed to give $ 17.6 million to North Carolina State University to map out the genetic makeup of tobacco.

According to Philip Morris spokeswoman Jennifer Golisch, the company could use the data from the NCSU research to find various ways to genetically alter tobacco, curbing its negative health effects.

"This is a demonstrable sign of our commitment to scientific research, particularly those associated with reducing the harm of using tobacco products," said Golisch in a recent Associated Press report.

The Tobacco Genome Initiative, which will take place over an approximated four-and-a-half-year period, will be led by researchers Charles Opperman and Steve Lommel from NCSU's College of Agriculture and Life Sciences.

"Philip Morris has had a long relationship with N.C. State," said Opperman, a professor of plant pathology. "One of the main reasons Philip Morris has initiated this project is because they are committed to tobacco risk reduction." Opperman added that in addition to its risk-reduction possibilities, the research data, which will ultimately be released to the public, could also lead to engineering the leaf for alternative uses.

While Opperman admits that he has not worked directly with tobacco to the extent that this project will entail, he says that tobacco is considered as the "white rat" of the plant world, and it is used frequently as a model for other research projects.

The process that will be used by NCSU researchers to map out the genetic makeup of the plant will be relatively standard, said Opperman, involving practices similar to the sequence mapping of a human genome.

Researchers will first build a genomic library and then make the physical map.

"One thing to remember though is that the tobacco genome is huge at 4.5 billion

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base pairs compared to the 3 billion base pairs of humans," said Opperman. "So, one of our major objectives will be to discover over 90 percent of the genome."

According to Smokeaway.org, cigarette smoke consists of more than 4,700 chemical compounds.

"Inhaling the hot toxic fumes from burning tobacco burns the linings of the air passages and reduces the smoker's ability to fight off disease," noted the Web site. "The large particles in smoke form a corrosive tar containing many poisonous chemicals, and this tar collects in the smoker's lungs, exposing the smoker to these dangerous chemicals."

And for this reason, there are some academic institutions and organizations that are against funding from tobacco companies -- companies who now agree with Smokeaway.org's advisory that tobacco products are addictive and dangerous.

But NCSU research officials say that the benefits to this research contract, which is the largest ever received by the College of Agriculture and Life Sciences and one of the biggest obtained by NCSU, could outweigh the negatives.

Opperman and other NCSU researchers agree that the project will not only bring recognition and funding to the college, but it also has the potential to improve the health of thousands of Americans who smoke.

And NCSU has already made progress toward reducing health risks related to tobacco use.

Developed at NCSU, a genetically altered tobacco plant that is nearly free of nicotine was recently purchased for use by Vector Tobacco in Durham, according to a News and Observer report.

Opperman and other researchers at the College of Agriculture and Life Sciences are excited about the Tobacco Genome Initiative.

Opperman noted that "students will be intimately involved in the project."

Undergraduate students will fill a fair number of the hourly posts while graduate students will be involved with spinoffs of the project.

"We like to get students involved in projects of this magnitude," said Opperman.

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